



**SQUAMISH**

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# Climate Action Revenue Incentive (CARIP) Public Report for 2015



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**Local Government: District of Squamish**

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The District of Squamish has completed the 2015 Climate Action Revenue Incentive Program (CARIP) Public Report as required by the Province of BC. The CARIP report summarizes actions taken in 2015 and proposed for 2016 to reduce corporate and community-wide energy consumption and greenhouse gas emissions (GHG) and reports on progress towards achieving carbon neutrality. There is also an opportunity to report on climate adaptation actions.

# Climate Action Revenue Incentive (CARIP) Public Report for 2015

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## 2015 BROAD PLANNING ACTIONS

### Broad Planning Actions

Broad planning refers to high level planning that sets the stage for GHG emissions reductions, including plans such as Official Community Plans, Integrated Community Sustainability Plans, Climate Action Plans or Community Energy Emissions Plans. Land use planning that focuses on Smart Growth principles (compact, complete, connected, centred) plays an especially important role in energy and GHG reduction.

#### Community-Wide Actions Taken in 2015

The District of Squamish is currently updating its Official Community Plan (OCP). The Plan will include a better and stronger approach to implementing Smart Growth principles through land development and redevelopment opportunities. Climate change mitigation and adaptation will also be considered part of this update.

Adoption of the Zoning Bylaw amendment to facilitate the (re)development of the Squamish oceanfront peninsula, focusing on a high density, mixed use, Smart growth principles, and which also facilitates the (re)development of an industrial brownfield site.

Amendments to the zoning bylaw minibus included:

- Densification of single-family lots by introducing more options for secondary suites (Broad Planning)
- Adjustment of building height restrictions to recognize challenges of Flood Construction Levels (Climate Change Adaptation)
- Elimination of setback requirements for solar energy generation devices (Energy Generation)
- Introduction of density bonus provisions to facilitate energy efficiency (Building Action)

Amended the Fees and Charges Bylaw to allow for densification by eliminating building permit fees for secondary suites to facilitate limited densification of single-unit neighbourhoods.

### Community-Wide Actions Proposed for 2016

A comprehensive review of the District’s Zoning and Building Bylaws will be initiated to introduce a density bonus, land use, and construction framework for building efficiency.

Develop guidelines for establishing Development Permit Areas that address climate action through water conservation, energy conservation, and GHG emissions reductions.

Coordinate the preparation of a district energy feasibility study to determine the feasibility of creating such a system in Squamish’s downtown and oceanfront areas, thereby reducing energy consumption and greenhouse gas production in new buildings constructed in the future in the area.

Preparation of a district energy bylaw that requires new buildings to be connected to a district energy system once established, to reduce energy consumption and greenhouse gas production in new buildings constructed in the future in the area.

### Snapshot Questions

<p>What GHG reduction targets are included in your local government’s Official Community Plan or Regional Growth Strategy?</p> <p>The District of Squamish’s current Official Community Plan outlines greenhouse gas reduction actions &amp; targets. These reduction actions and targets are currently being reviewed as part of Official Community Plan update (2016).</p> <p>The current targets are available here:  <a href="https://squamish.civicweb.net/filepro/documents/52352">https://squamish.civicweb.net/filepro/documents/52352</a></p>	<p><u>Yes/No</u></p>
<p>Are you familiar with the Community Energy and Emission Inventory (CEEI)?</p>	<p><u>Yes/No</u></p>
<p>Does your local government use the Community Energy and Emissions Inventory (CEEI) to measure progress?</p>	<p><u>Yes/No</u></p>
<p>Which of the following does your local government use to guide climate action implementation?</p> <ul style="list-style-type: none"> <li>• Community Energy and Emissions (CEE) Plan</li> <li>• Climate Action Plan</li> <li>• Integrated Community Sustainability Plan</li> <li>• Official Community Plan (OCP)</li> <li>• Regional Growth Strategy (RGS)</li> <li>• Other:</li> </ul>	<p><u>Yes/No</u>  <u>Yes/No</u>  <u>Yes/No</u>  <u>Yes/No</u>  <u>Yes/No</u>  <u>Yes/No</u></p>
<p>Does your local government have a climate action reserve fund?</p>	<p><u>Yes/No</u></p>
<p>Does your local government have a Corporate Climate Action Plan?</p>	<p><u>Yes/No</u></p>

## 2015 BUILDINGS AND LIGHTING ACTIONS

### Building and Lighting Actions

Low-carbon buildings use the minimum amount of energy needed to provide comfort and safety for their inhabitants and tap into renewable energy sources for heating, cooling and power. These buildings can save money, especially when calculated over the long term. This category also includes reductions realized from energy efficient streetlights and lights in parks or other public spaces.

#### Community-Wide Actions Taken in 2015

With encouragement from Squamish's Alternative Energy Group Squamish became the Fifth Canadian Solar City

Solar panels were built into the design of the new Legacy Project Canoe Restoration Shed, part of the Squamish Legacy Project. The solar panels are the only source of energy for the shed.

Two sets of lit pedestrian beacons were installed near local elementary schools. The beacons are powered by solar energy.

Solar Zinc Fuel Cell lights were installed on a pedestrian bridge at Brennan Park – increasing year round safety and accessibility.

#### Community-Wide Actions Proposed for 2016

In the first half of 2016 the District of Squamish installed 20 LED light fixtures along the Corridor Trail, a popular active transportation route. Plans are in place to continue this work along additional sections of the trail.

Three additional sets of pedestrian beacons will be installed near local elementary schools. The beacons will be powered by solar energy.

The District will continue to seek opportunities to upgrade existing lighting fixtures with LED fixtures

### **Corporate Actions Taken in 2015**

Replaced a 25-year-old inefficient HVAC unit at Brennan Park Recreation Centre with similar but more efficient model.

Removed a 20 year old gas furnace at the Operations Works Yard and replaced with small wall mounted electric heaters thereby improving efficiency.

Removed two sanitary lift stations and replaced them with gravity sewers which require no energy or maintenance.

Installed motion sensors on lights at District facilities, and replaced external lights with LED models. This work will also continue in 2016.

Facilitated the annual energy challenge between Municipal buildings to increase staff awareness of ways to reduce energy consumption.

### **Corporate Actions Proposed for 2016**

The District will continue to install motion sensors on lights at District facilities, and replace light fixtures with LED models including the current fixtures at Brennan Park Auditorium. Other upgrades include the replacement of an existing gas furnace with electric heaters.

Upgrades will be made to the digital controls for the arena dehumidifier to improve efficiency and have it operate only as necessary.

Water for the ice re-surfacer is currently heated with a hot water boiler. This will be replaced with a cold water system called Real Ice that will result in estimated savings of 28 tonnes of GHG per year. Savings will result due to:

- Not using hot water
- Less energy used to cool ice as there will be no hot water in resurfacing process
- Less energy used by de-humidifier as there is less moisture in the air to remove

The current arena slab is 27 years old and will be replaced which will allow for more efficient cooling.

The District will facilitate and participate in an annual energy challenge between Municipal buildings to increase staff awareness of ways to reduce energy consumption.

The District will continue to install variable frequency drives for pumps at Powerhouse Springs.

## 2015 ENERGY GENERATION ACTIONS

### Energy Generation

A transition to renewable or low-emission energy sources for heating, cooling and power supports large, long-term GHG emissions reductions. Renewable energy including waste heat recovery (e.g. from biogas and biomass), geo-exchange, micro hydroelectric, solar thermal and solar photovoltaic, heat pumps, tidal, wave, and wind energy can be implemented at different scales, e.g. in individual homes, or integrated across neighbourhoods through district energy or co-generation systems.

#### Community-Wide Actions Proposed for 2016

The District of Squamish will work to prepare a district energy bylaw that requires new buildings to be connected to a district energy system once established, to reduce energy consumption and greenhouse gas production in new buildings constructed in the future in the area.

Feasibility for the Mashiter Run of the River project is currently underway. This project has the potential to use the existing water system to generate energy.

#### Corporate Actions Proposed for 2016

A study will be undertaken in 2016 to assess feasibility of using thermal energy exchange from the Waste Water Treatment Plant Effluent to heat the Parks & Horticulture Greenhouses

#### Snapshot Questions

Is your local government developing, or constructing a district energy project?	<u>Yes/No</u>
Is your local government operating a district energy system?	<u>Yes/No</u>
Is your local government developing or constructing a renewable energy project?	<u>Yes/No</u>
Is your local government operating a renewable energy project?	<u>Yes/No</u>
Are you aware of the Integrated Resource Recovery guidance page on the BC Climate Action Toolkit?	<u>Yes/No</u>



## 2015 GREENSPACE/ NATURAL RESOURCE PROTECTION ACTIONS

Greenspace/Natural Resource Protection refers to the creation of parks and greenways, boulevards, community forests, urban agriculture, riparian areas, gardens, recreation/school sites, and other green spaces, such as remediated brownfield/contaminated sites as well as the protection of wetlands, waterways and other naturally occurring features.

### Community Actions Taken in 2015

The “River Estuary Education Program” was delivered by the Squamish River Watershed Society

### Corporate Actions Taken in 2015

The District of Squamish gained the following natural areas in 2015:

- Riparian Protection 1.24ha
- Dedicated Park 4.647ha
- Dedicated Park 5.57ha

The Squamish River Watershed Society, BC Wildlife Federation, and Tree Canada have supported the District of Squamish’s climate and environmental actions.

### Corporate Actions Proposed for 2016

Environmentally Sensitive Areas (ESA) Mapping to be completed in 2016

Sensitive Habitat Inventory Mapping (SHIM) will be underway throughout 2016.

The District will continue work to restore disturbed riparian areas on District land.

As part of the OCP process and update the Site Alteration Bylaw will be rewritten.

### Snapshot Question

Does your local government have urban forest policies, plans or programs?

**Yes/No**

## 2015 SOLID WASTE ACTIONS

### Solid Waste

Reducing, reusing, recycling, recovering and managing the disposal of the residual solid waste minimizes environmental impacts and supports sustainable environmental management, greenhouse gas reductions, and improved air and water quality.

#### Community-Wide Actions Taken in 2015

The bi-weekly curbside organics collection collected 988.90 metric tons in 9 months from single family homes and townhouse complexes in Squamish.

The District ran Pitch in Week and supported Great Canadian Shoreline Clean up. The District also supported the "Re-use It Fair," organized by Squamish Climate Action Network (CAN).

#### Community-Wide Actions Proposed for 2016

June – September, the organics curbside collection will move to weekly pick-up to increase participation and collection rates.

An education station will be set up at Public Works Day to teach about solid waste management including composting and recycling.

A study on zero waste in Squamish will be completed in addition to a new Solid Waste Strategy.

The District of Squamish will continue to provide information and reminders on recycling and organics across all municipal facilities.

#### Snapshot Questions

Does your local government have construction and demolition waste reduction policies, plans or programs?	<u>Yes/No</u>
Does your local government have organics reduction/diversion policies, plans or programs?	<u>Yes/No</u>

## 2015 TRANSPORTATION ACTIONS

### Transportation

Transportation actions that increase transportation system efficiency, emphasize the movement of people and goods, and give priority to more efficient modes, e.g. walking, cycling, ridesharing, and public transit, can contribute to reductions in greenhouse gas emissions and more livable communities.

#### Community -Wide Actions Taken in 2015

The Active Transportation Planning process was launched in 2015.

Began exploring opportunities for providing additional, advertising- supported bus shelters.

Conducted a feasibility study of the “Turtle Trail” – a pedestrian/bike loop encircling downtown Squamish and several neighborhoods.

Pedestrian and cycling infrastructure improvements were made to two local intersections (Garibaldi Way at Government Rd. and Depot Rd. and Government Rd.)

2015 – HASTe BC began its delivery of Active and Safe Routes to School programming for three of six public elementary schools (Garibaldi Highlands Elementary, Mamquam Elementary, and Squamish Elementary). This program spans the 2015/2016 school year. From this program potential pedestrian and cycling safety infrastructure improvements have been identified. Educational programming is also included to encourage students to use more active modes of transportation to get to school.

#### Community-Wide Actions Proposed for 2016

To finalize the Active Transportation Plan and begin implementation.

HASTe BC Safe Routes to School programming will continue at three current schools and will expand to include three additional elementary schools for the 2016/17 school year. From this program potential pedestrian and cycling safety infrastructure improvements will be identified.

24 projects have been identified through the Active Transportation Planning process (the plan is currently in draft format). These projects are scheduled to occur throughout 2016.

Four bus shelters will be built to provide shelter to transit users, improving the overall transit experience and encouraging increased ridership.

Streetscape upgrades will be completed on Cleveland Avenue, improving pedestrian and cycling safety and connecting two downtown parks.

Lighting will continue to be upgraded to LED fixtures along with capital improvements.

The District of Squamish will continue to work with BC Transit to optimize public transit services.

The District will work to amend a bylaw that allows the use of neighbourhood zero emission vehicles on municipal streets.

#### Corporate Actions Taken in 2015

The District of Squamish supported, and participated in Bike to Work Week 2015. Interdepartmental challenges were encouraged. This support and participation will continue in 2016 with the District supporting an additional celebration station and wrap-up event.

#### Corporate Actions Proposed for 2016

The District is piloting fleet GPS software that would allow for more efficient use of fleet vehicles and help minimize fuel consumption.

#### Snapshot Questions

Does your local government have policies, plans or programs to support:

- Walking
- Cycling
- Transit Use
- Electric Vehicle Use
- Other

Yes/No

Yes/No

Yes/No

Yes/No

Yes/No

Does your local government have a transportation demand management (TDM) strategy (e.g. to reduce single-vehicle occupancy trips, increase travel options, provide incentives to encourage individuals to modify travel behavior)?

Yes/No

Does your local government have policies, plans or programs to support local food production (thus reducing transportation emissions)?

Yes/No

## 2015 WATER AND WASTEWATER ACTIONS

### Water and Wastewater

Managing and reducing water consumption and wastewater is an important aspect of developing a sustainable built environment that supports healthy communities, protects ecological integrity, and reduces greenhouse gas emissions.

#### Community-Wide Actions Taken in 2015

District of Squamish adopted a Water Master Plan that included a water conservation plan to reduce per capita water consumption by 15% by 2031. This will defer the need to add additional water sources as well as reduce the power consumption associated with water pumping and treatment.

The water conservation plan included a broad range of initiatives including a water loss management plan, outdoor water use bylaws enforcement, customer water audits, building bylaw amendments for low flow fixtures and drought resistant landscaping, public education campaigns and endorsement of local initiatives.

The District of Squamish adopted a Liquid Waste Management Plan that includes several planning initiatives that are expected to reduce carbon emissions in the future.

#### Community-Wide Actions Proposed for 2016

Continue Well Protection Plan implementation.

Continue implementation of Liquid Waste Management Plan.

Maintain public communication regarding water conservation.

#### Snapshot Questions

Does your local government have water conservation policies, plans or programs?

**Yes/No**

## 2015 CLIMATE CHANGE ADAPTATION ACTIONS

### Climate Change Adaptation

For local governments, adaptation to a changing climate can take the form of changes in policy, management, technology and behaviour that minimize negative impacts or exploit opportunities. It can involve both “hard” and “soft” solutions, including: changes in infrastructure engineering, planning, zoning, bylaws, and public education.

Community-Wide Actions Taken in 2015
<p>The Zoning Bylaw Minibus Amendments included adjustment of building height restrictions to recognize Flood Construction Level challenges</p> <p>Continuation of the Integrated Flood Hazard Management Plan (IFHMP) process, being funded through the Gas Tax Community Works Fund. The IFHMP is a long range planning initiative with the objective of reducing community flood risk. It will achieve this through a number of measures, some of which will reduce carbon emissions including:</p> <ul style="list-style-type: none"> <li>- Preserving the Squamish Estuary and other environmentally sensitive habitats due to their flood protection characteristics</li> <li>- Maintaining greenways and recreational corridors to function as dedicated floodways and flood storage, recommending Smart Growth by concentrating development within existing neighborhoods and using ‘Green Shores’ dyke technologies in areas bordering the estuary or high value environmental sites.</li> </ul>
Community-Wide Actions Proposed for 2016
Complete the Integrated Flood Hazard Management Plan and continue to implement.

Snapshot Questions	
Are you aware of the Plan2Adapt guidance page on the <a href="#">BC Climate Action Toolkit</a> ?	<u>Yes/No</u>
Are you aware of the <i>Preparing for Climate Change, An Implementation Guide for Local Governments in BC</i> on the <a href="#">BC Climate Action Toolkit</a> ?	<u>Yes/No</u>
Have you visited the climate change adaptation guidance page on the <a href="#">BC Climate Action Toolkit</a> ?	<u>Yes/No</u>

## 2015 OTHER CLIMATE ACTIONS

### Other Climate Actions

This section provides local governments the opportunity to report other climate actions that are not captured in the categories above.

Community-Wide Actions Taken in 2015
The Zoning Bylaw Minibus Amendment included relaxations of requirements for rural and urban agriculture – encouraging local food production.

## 2015 CARBON NEUTRAL REPORTING

### Reporting Emissions

Did you measure your local government's corporate GHG emissions in 2015?	<b>YES</b>
If your local government measured 2015 corporate GHG emissions, please report the number of corporate GHG emissions (in tonnes of carbon dioxide equivalent) from services delivered <u>directly</u> by your local government:	<b>884 tCO<sub>2</sub>e</b>
If your local government measured 2015 corporate GHG emissions, please report the number of corporate GHG emissions (in tonnes of carbon dioxide equivalent) from <u>contracted</u> services:	<b>166 tCO<sub>2</sub>e</b>
<b>TOTAL A: CORPORATE GHG EMISSIONS FOR 2015</b>	<b>1050 tCO<sub>2</sub>e</b>

### Reporting Reductions and Offsets

To be carbon neutral, a local government must balance their TOTAL corporate GHG emissions by one or a combination of the following actions:

- undertake Option 1 Projects (GCC-supported)
- undertake Option 2 Projects (alternative) community GHG emissions reduction projects that meet project eligibility requirements
- purchase carbon offsets from a credible offset provider

**If applicable, please report the 2015 GHG emissions reductions (in tonnes of carbon dioxide equivalent (tCO<sub>2</sub>e)) being claimed from Option 1 GHG Reduction Projects:**

OPTION 1 PROJECTS	REDUCTIONS
Energy Efficient Retrofits	

Solar Thermal	
Household Organic Waste Composting	<b>631 tCO2e</b>
Low Emission Vehicles	
Avoided Forest Conversion	
<b>TOTAL B: REDUCTIONS FROM OPTION 1 PROJECTS FOR 2015</b>	<b>631 tCO2e</b>

If applicable, please report the names and 2015 GHG emissions reductions (in tonnes of carbon dioxide equivalent (tCO2e)) being claimed from Option 2 GHG Reduction Projects:

OPTION 2 PROJECT NAME	REDUCTIONS
Not Applicable	<b>0</b>
<b>TOTAL C: REDUCTIONS FROM OPTION 2 PROJECTS FOR 2015</b>	<b>0 tCO2e</b>

If applicable, please report the number of offsets purchased (in tonnes of carbon dioxide equivalent (tCO2e)) from an offset provider for the 2015 reporting year:

(NOTE: DO NOT INCLUDE ANY FUNDS THAT MAY BE SET ASIDE IN A CLIMATE ACTION RESERVE FUND)

OFFSET PROVIDER	REDUCTIONS
Not Applicable	<b>0</b>
<b>TOTAL D: OFFSETS PURCHASED FOR 2015</b>	<b>0 tCO2e</b>

**TOTAL REDUCTION AND OFFSETS FOR 2015 (Total B+C+D) = 631 tCO2e**

### Corporate GHG Emissions Balance for 2015

Your local government's Corporate GHG Emissions Balance is the difference between total corporate GHG emissions (direct + contracted emissions) and the GHG emissions reduced through GCC Option 1 and Option 2 projects and/or the purchase of offsets.

**CORPORATE GHG EMISSIONS BALANCE FOR 2015 = (A – (B+C+D)) = 419 tCO2e**

**If your Corporate GHG Emissions Balance is negative or zero,  
your local government is carbon neutral.  
CONGRATULATIONS!**



## GCC CLIMATE ACTION RECOGNITION PROGRAM

### Green Communities Committee (GCC) Climate Action Recognition Program

The joint Provincial-UBCM Green Communities Committee (GCC) is pleased to be continuing the Climate Action Recognition Program again this year. This multi-level program provides the GCC with an opportunity to review and publicly recognize the progress and achievements of each Climate Action Charter (Charter) signatory. Recognition is provided on an annual basis to local governments who demonstrate progress on their Charter commitments, according to the following:

**Level 1 - Progress on Charter Commitments:** for local governments who demonstrate progress on fulfilling one or more of their Charter commitments

**Level 2 - Measurement:** for local governments who have measured their Corporate GHG Emissions for the reporting year and demonstrate that they are familiar with the Community Energy and Emissions Inventory (CEEI)

**Level 3 - Achievement of Carbon Neutrality:** for local governments who achieve carbon neutrality in the reporting year.

**Based on your local government's 2015 CARIP Public Report, please check the GCC Climate Action Recognition Program level that best applies:**

<input type="checkbox"/>	Level 1 - Progress on Charter Commitments	
<input type="checkbox"/>	Level 2 - Measurement	<b>Level 2</b>
<input type="checkbox"/>	Level 3 - Achievement of Carbon Neutrality	
<input type="checkbox"/>	Not Sure	